

An aerial photograph of Judy Reservoir, a large artificial water storage facility. The reservoir is a dark blue, irregularly shaped body of water surrounded by dense green forest. A long, straight concrete dam runs along the right side of the reservoir. To the left of the dam, there are several smaller structures and a road. The surrounding landscape is hilly and forested, with some cleared areas visible near the reservoir. The sky is overcast and hazy.

# **JUDY RESERVOIR**

**AN OFF-STREAM WATER STORAGE PROJECT**

# Judy Reservoir System

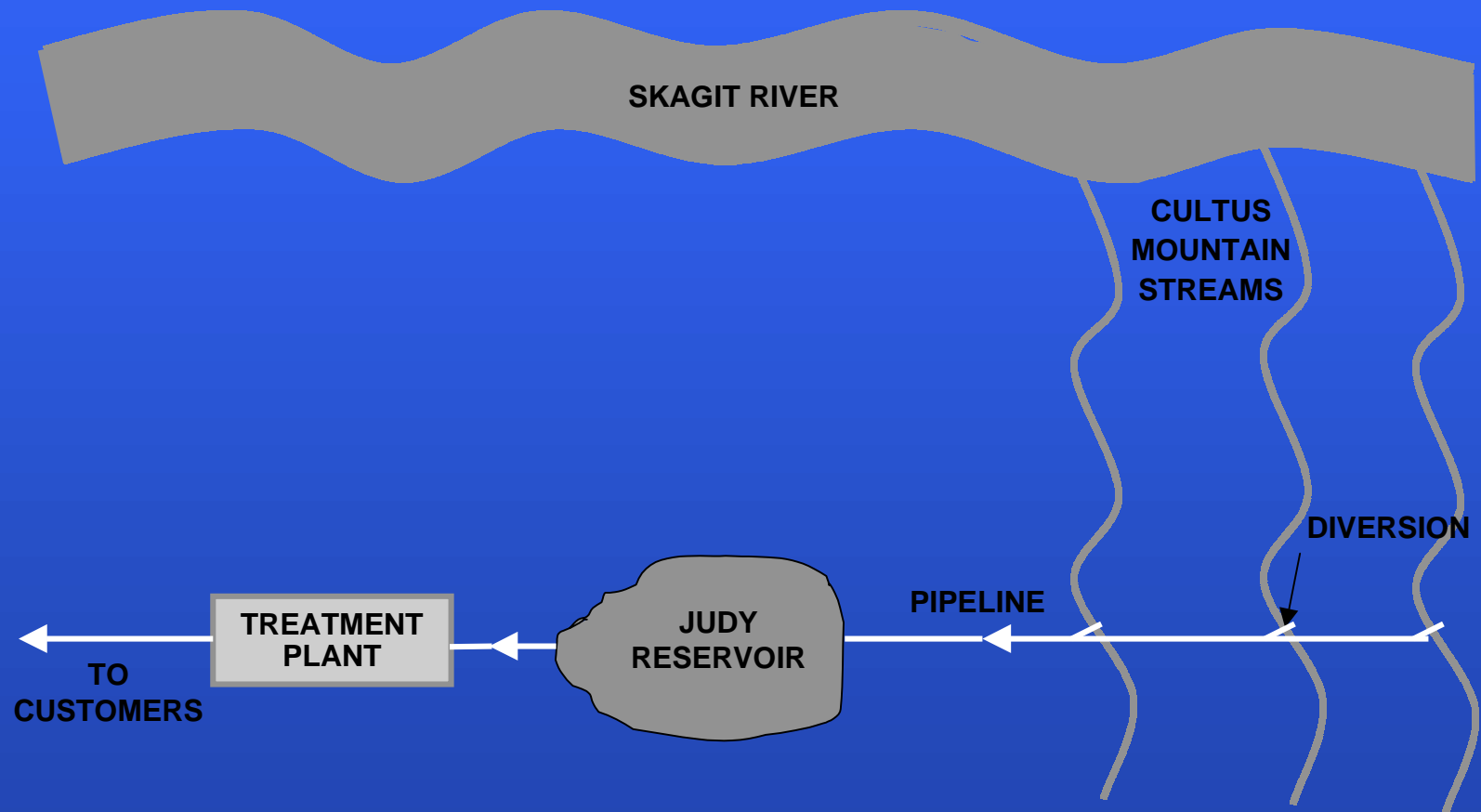
- Owned and operated by PUD No. 1 of Skagit County
- Supplies water to 50,000 customers in and around Mount Vernon, Sedro Woolly and Burlington
- Located off-stream, two miles south of Skagit River



# Judy Reservoir Looking West



# Judy Reservoir System



# Characteristics Of System

- Formed by two earthfill dams within the Janicki Creek watershed
- Janicki Creek diverted around reservoir
- Built in 1946
- Dam A ht. to 46' – Dam B to 51'
- Dams raised by 20 feet in 1965



# Dam A in Foreground



# Dam A





# Dam B in Foreground





# Dam B



# Need for Improvements

- Water demand is expected to double in the next 50 years
- Demand exceeds system capacity in peak-use months
- Full water rights on Cultus Mountain streams cannot be exerted without harm to fishery

# Evaluation of Alternatives

- **Water resources plan**
- **District analyzed alternatives**
  - new reservoir
  - purchase of water from others
  - groundwater
  - water conservation
- **District selects improvements to Judy Reservoir System**
  - low cost
  - low environmental impacts
  - energy efficient



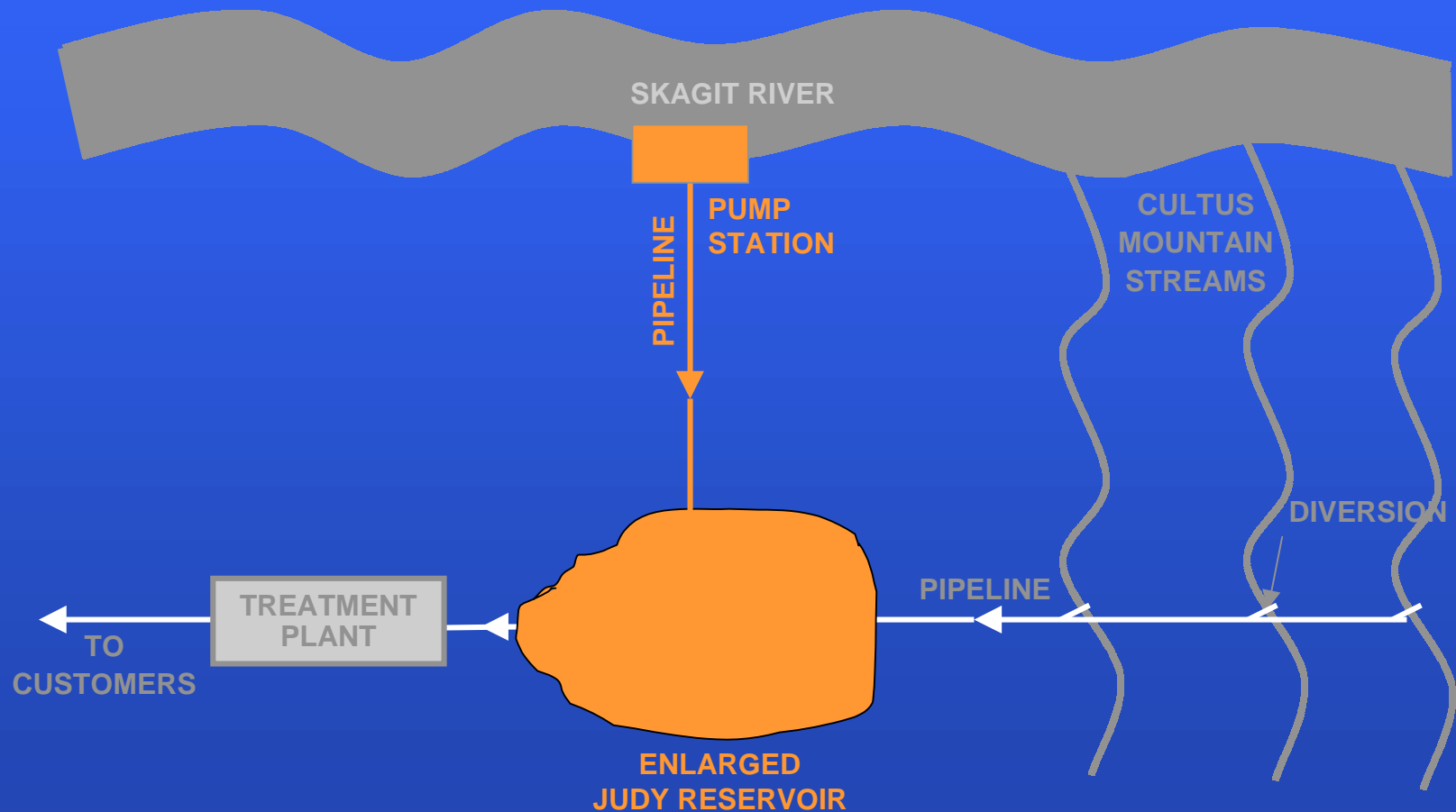
# Project Funding

- **Totally District funds**
- **Revenue issues**
- **System Development Fees**
- **Public Works Trust Fund**
- **Capital funds from logging**

# Project Components

- **Memorandum of Agreement**
- **Phase I**
  - Raise dams by 10 feet to increase usable storage by 50%
  - Decrease diversion from Cultus Mountain streams
- **Phase II**
  - Construct pump station on Skagit River to enable filling of reservoir when fish protection requirements limit diversions from streams

# Judy Reservoir Improvements





# Memorandum of Agreement

- Agree on change in point of diversion for water rights to dual point of diversion
- Commit to IFIM studies to provide scientific basis for diversions
- Build trust between parties through MOA
  - District
  - State and Federal Agencies
  - Tribes
  - County

# COST

• Planning, Permitting and Design	\$ 1,243,600
• Legal	\$ 98,400
• Financing	\$ 215,000
• Construction	\$ 7,352,500
• TOTAL	\$ 8,909,500

# Phase I Environmental Impacts

- Loss of 4.6 acres of wetlands



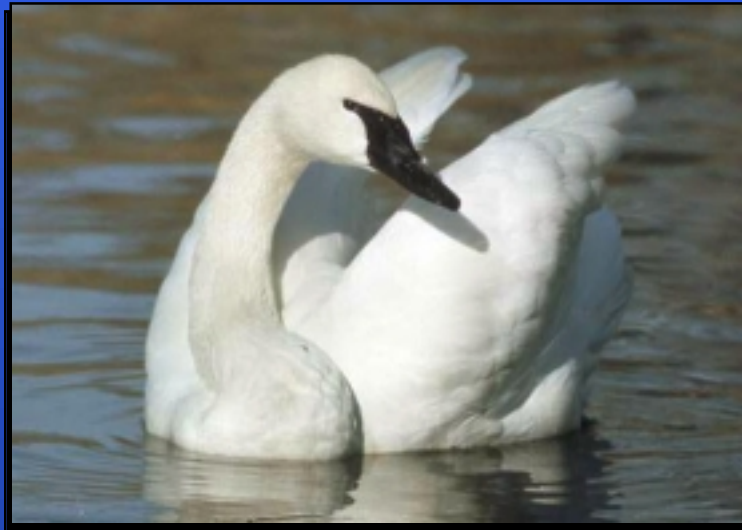


# Phase I Environmental Impacts

- **Reduced stream flow in Cultus Mountain streams**
  - mitigated by limiting diversions to those that can occur without injury to fish as determined by IFIM study

# Phase I Environmental Impacts

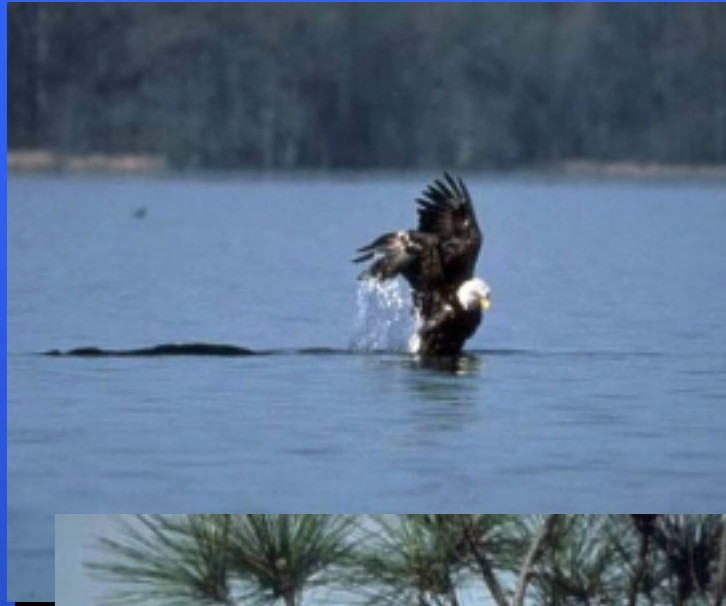
- Impacts to particular species
  - bald eagle (threatened)
  - trumpeter swan (state priority species)



# **Endangered Species Act Compliance**

- **Federal nexus - Clean Water Act  
Section 404 Permit**
- **Consultation letters to USFWS/NMFS**
- **Biological assessment**
- **Section 404 permit conditions**

# Bald Eagle





# Bald Eagle

- Nine nesting territories within 5 miles of site
- Major winter communal roost site within 4 miles of site
- Nearest nest approximately 1 mile from site
- Primary concern - disturbance of nesting birds by construction noise (1 January to 15 August)

# Bald Eagle

- Noise estimates were made at nest sites
- Conclusion
  - Ordinary construction noise would have no significant effect on noise levels at nests
  - Blasting noise would be audible at nearest nest sites
- Agreement with agencies
  - Ordinary construction activities allowed to overlap nesting period
  - No blasting would be allowed before 15 August

# Bald Eagle



# Trumpeter Swan



# Trumpeter Swan

- Judy Reservoir largest winter roosting area in United States
- Enlargement of reservoir surface area benefits swans
- Loss of grassy reservoir margins could adversely affect swans
- Mitigation measures
  - limit construction to months swans are not present
  - grade land at water's edge to provide resting area
  - mow resting area periodically to minimize cover for predators



# Permits

- **Clean Water Act Section 404**
- **Clean Water Act Section 401 Certification**
- **Shoreline Permit**
- **Hydraulic Project Approval**
- **County Permits**

# Clean Water Act

- Loss of wetlands mitigated by creation of 13 acres of new wetlands
- Bald eagles protections are conditions of 404 permit
- Took 12 months to obtain permit

# Hydraulic Project Approach

- **Calls for improved fish habitat in Janicki Creek diversion**
- **Native vegetation along new channel**
- **Rounded gravel in channel bottom**

# Project Status

- Phase 1 about 75 percent complete
- Phase 2 permitting beginning
- Expected ESA issues in Phase 2
  - bald eagle
  - Puget Sound chinook salmon (threatened)
  - Bull trout (threatened)
- Lessons learned
  - allow at least one year for permitting
  - make sure that wildlife agency staff fully understand project characteristics and construction methods

# Project Status

